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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,690	04/15/2005	Piotr Kula	122083	1493
25944	7590	01/17/2008	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 320850 ALEXANDRIA, VA 22320-4850			ZHU, WEIPING	
			ART UNIT	PAPER NUMBER
			1793	
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			01/17/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/531,690	KULA ET AL.
	Examiner	Art Unit
	Weiping Zhu	1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 14 January 2008.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1,2,4 and 5 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1, 2, 4 and 5 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____.
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)	5) <input type="checkbox"/> Notice of Informal Patent Application
Paper No(s)/Mail Date _____.	6) <input type="checkbox"/> Other: _____.

## DETAILED ACTION

### ***Status of Claims***

1. Claims 1, 2, 4 and 5 are currently under examination, wherein claims 1 and 2 have been amended in applicant's amendment filed on November 15, 2007. The original claim 3 has been cancelled in the same amendment.

### ***Status of Previous Rejections***

2. The previous rejections of claim 1-3 under 35 U.S.C. 102(b) as being anticipated by JP 2000-001765 as stated in the Office action dated August 17, 2007 have been withdrawn in light of applicant's amendment filed on November 15, 2007 and the previous rejections of claims 4 and 5 under 35 U.S.C. 103(a) as being unpatentable over JP ('765) in view of Meyer et al. (US 5,580,397) as stated in the Office action dated August 17, 2007 have been maintained.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP ('765) in view of Meyer et al. ('397).

With respect to claims 1 and 2, JP ('765) discloses a gas mixture for vacuum carburizing (i.e. the claimed under-pressure carburizing) comprising 70% ethylene gas and 30% acetylene gas (paragraph [0024], translation). The content ratio of acetylene to ethylene is 0.428, which is beneficial and preferable (paragraphs [0025] and [0026]). It

would have been obvious to one of ordinary skill in the art at the time the invention was made that the gas mixture of JP ('765) is capable of being further mixed with other elements modifying the carburizing process as desired. JP ('765) does not specify the content ratio of acetylene to ethylene as claimed. However, it is well held that discovering an optimum value of a result-effective variable involves only routine skill in the art. *In re Boesch*, 617, F.2d 272, 205 USPQ 215 (CCPA 1980). In the instant case, the content ratio of acetylene to ethylene is a result-effective variable, because it would directly affect the resultant surface carbon concentration, the carbon concentration gradient, microstructures, soot generation of the carburized article and the cost of the carburizing process as disclosed by JP ('765) (paragraphs [0025] and [0026]). See MPEP 2144.05 II. It would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the content ratio of acetylene to ethylene as disclosed by JP ('765) in order to achieve desired surface properties and structures of the carburized article at a reduced cost.

Claims 4 and 5 are rejected for the reasons as stated in the Office action dated August 17, 2007.

***Response to Arguments***

4. The applicant's arguments and the Declaration under 37 C.F.R. §1.132 signed by one of the inventors Mr. Piotr Kula filed on November 15, 2007 have been fully considered but they are not persuasive.

The applicant argues that the claimed content ratio of acetylene to ethylene in the range of 0.55 to 2.0 is critical and can generate unexpected results in carbon carrier

consumption as evidenced by the experiment described in the Declaration. In response, the examiner notes that the rejection was based on the prior art's broad disclosure rather than preferred embodiments. See MPEP 2123 and ground(s) of rejection of the ratio in the paragraph 3 above. The examiner's further notes that the applicant failed to establish the criticality of the content ratio of acetylene to ethylene between the ratio of 0.428 of JP ('765) and the claimed lowest ratio of 0.55 in the experiment. Therefore, one of ordinary skill in the art would expect the same results in the carbon carrier consumption between the claimed and JP ('765)'s carburizing processes.

### ***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Weiping Zhu whose telephone number is 571-272-6725. The examiner can normally be reached on 8:30-16:30 Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

WZ

1/14/2008

*R*  
**ROY KING**  
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